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L2	0	'time' adj1 domain adj1 downconversion adj2 radar	USPAT	OR	OFF	2005/08/01 09:58
L3	2	'time' adj1 domain adj1 downconversion adj2 radar	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2005/08/01 09:58
L4	0	("2005/0104765").URPN.	USPAT	OR	OFF	2005/08/01 09:58
L5	8986	varactor	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2005/08/01 10:02

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- ☒ Classification codes A: Physics, 7
- ☒ Classification codes A: Physics, 8
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    VCOs.....2

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**A millimeter-wave, third-harmonic, Gunn VCO with *ultra-wideband* tuning.**

***Accession number & update***

4081898, B9203-1350F-040; 920128.

***Author(s)***

Cohen-L-D.

***Author affiliation***

AIL Syst Inc, Melville, NY, USA.

***Source***

1991 IEEE MTT-S International Microwave Symposium Digest (91CH2870-4), Boston, MA, USA, 10-14 June 1991, p.937-8 vol.3.

Sponsors: IEEE.

Published: IEEE, New York, NY, USA, 1991, 3 vol. (v+xxxvii+xxxvii +1370) pp.

***ISSN***

ISBN: 0-87942-591-1, CCCC: CH2870-4/91/0000-0937 (\$01.00).

***Publication year***

1991.

***Language***

EN.

***Publication type***

CPP Conference Paper.

***Treatment codes***

P Practical; X Experimental.

***Abstract***

State-of-the-art *ultra-wideband* tuning (69 to 91 GHz) has been demonstrated with a third-harmonic, *varactor-tuned*, GaAs Gunn oscillator. The 22 GHz wide tuning band was obtained by tuning the voltage-controlled oscillator (VCO) at the fundamental frequency and using the in-situ generated Gunn-diode third harmonic for output. Lumped-element VCO circuit refinements have resulted in the frequency extension of the use of lumped-element VCO circuit technology to 91 GHz in W-band (WR-10) from the previously reported maximum frequency of 66 GHz in V-band (WR-15). (6 refs).

***Descriptors***

Gunn-oscillators; tuning; variable-frequency-oscillators.

***Keywords***

mm waves; Gunn VCO; *ultra wideband* tuning; voltage controlled oscillator; in situ generated Gunn diode third harmonic; lumped element VCO circuit technology; 69 to 91 GHz; 22 GHz; GaAs.

***Classification codes***

B1350F (Solid-state circuits and devices).

B1230B (Oscillators).

***Chemical indexing***

GaAs int, As int, Ga int, GaAs bin, As bin, Ga bin.

***Numerical indexing***

bandwidth: 2.2E+10 Hz;

frequency: 6.9E+10 to 9.1E+10 Hz.

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Advances in microwave and MM-wave oscillator and VCO technology challenge system designers' creativity: *ultra-wideband*, second-harmonic, MM-wave, lumped-element, Gunn VCOs.

USPTO Full Text Retrieval Options

**Accession number & update**

3806094, B91008541; 910100.

**Author(s)**

Cohen-L-D; Sard-E.

**Author affiliation**

AIL Syst Inc, Melville, NY, USA.

**Source**

Microwave-Journal (USA), vol.33, no.10, p.121-2, 124, 126, Oct. 1990.

**CODEN**

MCWJAD.

**ISSN**

ISSN: 0026-2897.

**Publication year**

1990.

**Language**

EN.

**Publication type**

J Journal Paper.

**Treatment codes**

P Practical.

**Abstract**

The development and performance of a state-of-the-art MM-wave *ultra-wideband* Gunn VCO has been described. The VCO is *varactor* tuned at the fundamental frequency and output is obtained from the in-situ generated Gunn diode second-harmonic frequency. Inherently, broadband tuning capability is provided by the use of a lumped-element circuit layout, reactively terminating the *varactor* tuned fundamental oscillation band, and the use of the in-situ generated Gunn second-harmonic frequency signal as output. The capability of a second-harmonic, lumped-element, Gunn VCO to provide full waveguide band tuning in the U band (40 to 60 GHz) is presented. Analytical projection indicates that a full W-band 75 to 110 GHz, VCO is feasible. (2 refs).

**Descriptors**

Gunn-oscillators; harmonic-oscillators-circuits; tuning; varactors; variable-frequency-oscillators.

**Keywords**

microwave oscillator; EHF; VFO; millimetre wave operation; MM wave oscillator; VCO technology; *ultra wideband* Gunn VCO; *varactor* tuned; Gunn diode; second harmonic frequency; broadband tuning capability; lumped element circuit layout; U band; 40 to 60 GHz; 20 GHz.

**Classification codes**

B1350F (Solid-state circuits and devices).

B1230B (Oscillators).

**Numerical indexing**

bandwidth: 2.0E+10 Hz;

frequency: 4.0E+10 to 6.0E+10 Hz.

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Voltage controlled oscillator in 18–40 GHz frequency band.

USPTO Full Text Retrieval Options

Accession number & update

3707771, B90060292; 900000.

**Author(s)**

Camiade-M; Savary-P.

**Author affiliation**

Thomson Composants Microondes/DMH, Orsay, France.

**Source**

Annales-des-Telecommunications (France), vol.45, no.5-6, p.315-20, May-June 1990.

**CODEN**

ANTEAU.

**ISSN**

ISSN: 0003-4347.

**Publication year**

1990.

**Language**

FR.

**Publication type**

J Journal Paper.

**Treatment codes**

P Practical; X Experimental.

**Abstract**

Describes the design, analysis and experimental results of 18-26 GHz fundamental and 26-40 GHz doubler voltage controlled oscillator. They use field effect transistors and hyperabrupt GaAs *varactor* diodes. The interest of such circuits are a good integration, a high speed frequency tuning capability and a high frequency of oscillation allowing to achieve *ultra wideband* VCO by frequency transposition at lower frequencies. (4 refs).

**Descriptors**

variable-frequency-oscillators; voltage-multipliers.

**Keywords**

SHF; EHF; frequency band; doubler voltage controlled oscillator; field effect transistors; *varactor* diodes; high speed frequency tuning; *ultra wideband* VCO; frequency transposition; 18 to 40 GHz; 26 to 40 GHz; GaAs.

**Classification codes**

B1230B (Oscillators).

**Chemical indexing**

GaAs int, As int, Ga int, GaAs bin, As bin, Ga bin.

**Numerical indexing**

frequency: 1.8E+10 to 4.0E+10 Hz, 2.6E+10 to 4.0E+10 Hz.

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